

EXHIBIT H

From: [REDACTED]
To: [Brad Sheridan](#)
Subject: RE: Schema Question
Date: Wednesday, September 4, 2024 4:04:55 PM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
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Thanks for taking the time to look into this Brad. I appreciate the extra effort.

From: Brad Sheridan <brad.sheridan@1159.ai>
Sent: Wednesday, September 4, 2024 4:03 PM
To: [REDACTED] @ **Project B**
Subject: External Email: Re: Schema Question

Notice: This email originated from outside of **Project B**. Please proceed with caution.

Ah, if there are other field types (int, float, etc...) that aren't coming over with InferSchema, then you might have to go ahead and create the schema ahead of time. I know that'll be a pain for really wide tables, but perhaps you can find a way to automate it or make it simple to manage.

I read this [article](#) earlier today that says inferring schema isn't a good idea anyway.

Thanks,



Brad Sheridan
Vice President, Data Engineering & Analytics
M: [REDACTED]-0767
O: (888) 369-1159
brad.sheridan@1159.ai
1159.ai

From: [REDACTED] <[REDACTED]@**Project B**>
Date: Wednesday, September 4, 2024 at 3:56 PM
To: Brad Sheridan <brad.sheridan@1159.ai>
Subject: RE: Schema Question

Hey Brad,

I have tried to use inferSchema, however it is not quite as good as I need. It gets the obvious ones, but often leaves a string where I would need an int or a float. These extracts can have over a hundred columns/fields so it is tough to look through them all. The date line is a good one, I will have to check on that to see if those come over normally.

[REDACTED]

From: Brad Sheridan <brad.sheridan@1159.ai>
Sent: Wednesday, September 4, 2024 3:50 PM
To: [REDACTED] <[REDACTED]@**Project B**>
Subject: External Email: Re: Schema Question

Notice: This email originated from outside of **Project B**. Please proceed with caution.

Afternoon [REDACTED] – just looked in my Sent folder and I did infact already send you something to try (below)

When the code does inferSchema=True, it gets strings and integers correct but not the date. So you can see that I took the date and threw it in a to_date function which you'll see worked when you display the dataframe.

Keep me posted. Thanks!



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From: Brad Sheridan <brad.sheridan@1159.ai>
Date: Wednesday, August 28, 2024 at 4:13 PM
To: [REDACTED] <[REDACTED]@**Project B**>
Subject: Re: Schema Question

Afternoon [REDACTED] – first, apologies for the long delay in responding. Not only have I been crazy-busy, but I resigned last week and my last day is Friday 9/6. So I've been swamped with turning over everything. Good news is that I'm going back to Infinitive, the place I was when I built the initial AWS lakehouse for **Project B**

Please try this code in a single cell, using a cluster with Spark 3.0 or higher. I've attached the csv I created and loaded to an S3 bucket:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



Brad Sheridan
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From: [REDACTED] <[REDACTED]@**Project B**>
Date: Friday, July 26, 2024 at 8:54 AM
To: Brad Sheridan <brad.sheridan@1159.ai>
Subject: RE: Schema Question

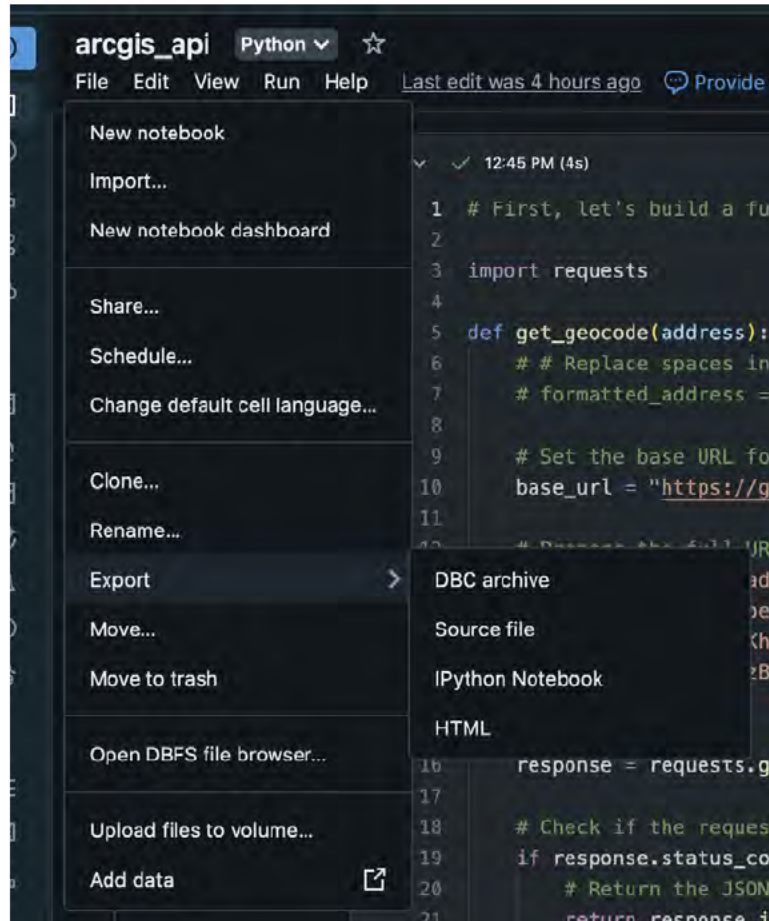
Hopefully this will send.

From: Brad Sheridan <brad.sheridan@1159.ai>
Sent: Thursday, July 25, 2024 4:55 PM
To: [REDACTED] <[REDACTED]@**Project B**>
Subject: External Email: Re: Schema Question

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Cool that we're both out on PTO at the same time

Could you please goto your notebook and export it as a "DBC Archive" (see screenshot below)?



I can't promise anything b/c all of my engineers are assigned to projects right now, but I'll try to get someone to take a look when I return from PTO.

Thanks Colin...enjoy your time off!



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From: [REDACTED] <[REDACTED]@Project B>
Date: Thursday, July 25, 2024 at 2:53 PM
To: Brad Sheridan <brad.sheridan@1159.ai>
Subject: RE: Schema Question

Brad,

Still have to look deeper into it, but my initial thought was that it wouldn't work for the current setup of this. I wasn't able to get DLT going in these notebooks reading from S3 the first time I tried. I should maybe go back and try, but I have updated the schema object manually for the time being. I also realized I should have just attached the notebook in my original email, sorry about that. Here it is, if you feel like taking a look. I am also going on PTO starting next week so no real rush.

From: Brad Sheridan <brad.sheridan@1159.ai>

Sent: Thursday, July 25, 2024 2:47 PM

To: [REDACTED] <[REDACTED]@Project B>

Subject: External Email: Re: Schema Question

Notice: This email originated from outside of [REDACTED] Project B. Please proceed with caution.

Hey there [REDACTED]! I'm trying to tie up some loose ends before PTO next week and wondering if you got the schema evolution working with DLT? Just curious.



Brad Sheridan
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From: Brad Sheridan <brad.sheridan@1159.ai>

Date: Tuesday, July 23, 2024 at 3:15 PM

To: [REDACTED] <[REDACTED]@Project B>

Subject: Re: Schema Question

Yeah, that would make sense that spark.read on a csv would default to string

Give dlt a shot...it's the only way to go these days :)



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From: [REDACTED] <[REDACTED]@Project B>

Sent: Tuesday, July 23, 2024 3:12:26 PM

To: Brad Sheridan <brad.sheridan@1159.ai>

Subject: RE: Schema Question

I will sign up for the community, looks like a good resource with useful information. This is close to what I want but I had to simulate some of the behavior because I am not using dlt or the AutoLoader. It looks like the default datatype from a .csv is a string so that explains why reading always give me that.

From: Brad Sheridan <brad.sheridan@1159.ai>

Sent: Tuesday, July 23, 2024 1:37 PM

To: [REDACTED] <[REDACTED]@Project B>

Subject: External Email: Re: Schema Question

Notice: This email originated from outside of [REDACTED] Project B. Please proceed with caution.

One more thing before I logoff for the day. NOTE: if you haven't signed up for the Databricks Community website, it's free and an awesome resource!!! Keep in mind that this isn't the "databricks community edition", it's the "databricks community"

Here is an example of schema evolution using DLT (instead of spark.read or Autoloader). I think if you read through this you'll see that it's what you're looking for, I think.

[REDACTED]

Let me know how it goes!



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From: [REDACTED] <[REDACTED]@Project B>
Date: Tuesday, July 23, 2024 at 1:00 PM
To: Brad Sheridan <brad.sheridan@1159.ai>
Subject: RE: Schema Question

Appreciate that, Brad. I will take a look.

From: Brad Sheridan <brad.sheridan@1159.ai>
Sent: Tuesday, July 23, 2024 12:59 PM
To: [REDACTED] <[REDACTED]@Project B>
Subject: External Email: Re: Schema Question

Notice: This email originated from outside of [REDACTED] Project B. Please proceed with caution.

Thanks for sharing such great detail [REDACTED]. I'm out the remainder of today but will have a look at this first thing in the morning.

In the meantime, I have something for you to research and try if you haven't already. Your comment about the schema potentially changing made me think of 'schema evolution' in databricks. I think there are 4 options: addnewcolumn, none, rescue, and fail. I bet rescue or add would be worthy of you testing.

Thanks again,



Brad Sheridan
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From: [REDACTED] <[REDACTED]@Project B>
Date: Tuesday, July 23, 2024 at 12:47 PM
To: Brad Sheridan <brad.sheridan@1159.ai>
Subject: Schema Question

Hey Brad,

The file has [REDACTED] which I think contains sensitive information, but I can give you my code if you have a minute to take a look.

Goal:

1. [REDACTED]

Issues:

1. [REDACTED]

Attempted Resolutions:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Notebook Outline:

1. [REDACTED]

Function Definition

[REDACTED]

Use of Function

[REDACTED]

Let me know if there are other questions and thanks for taking a look at this with me.

[REDACTED]

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